



KODAK

Self-Teaching Guide to Using an Adjustable 35 mm Camera

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INTRODUCTION

You have a 35 mm camera and want to take clear, colorful, snappy pictures. That's easy. In addition to the camera, all you will need is the camera's instruction book, this guide, some film and . . . practice.

EXERCISES

The exercises were designed to let you see how the various camera settings are used in taking different types of pictures. Try each exercise, make a copy of the page and paste your pictures with each exercise. When you are finished, this book of pictures will be a handy reminder of the things you can do with your camera.

NOTE: These exercises are designed for manually adjustable 35 mm cameras loaded with KODAK ROYAL GOLD 200 Film. Some of the suggested exposures are for the purposes of that exercise only.

MORE INFORMATION

If you need additional information or have questions, contact Kodak in your country.

SOME CAMERA BASICS

Does your camera have a built-in light meter (sometimes called an electric eye, or exposure meter)? If you're not sure, check the camera instruction book.

Does your camera need a battery? Many light meters require batteries to operate. Check on that in the camera instruction book. Also, be sure the battery is fresh. If the battery is dead, the meter won't work and your pictures won't be good. If your battery is weak your meter may work incorrectly. Most batteries last only about one year.

Does your camera have settings for "manual" (non automatic) operation? If you're not sure, check the camera instruction book.

Does your camera have a setting for "automatic" operation? If you're not sure, check the camera instruction book.

If you want to take pictures under all kinds of different conditions, you'll have to adjust the camera settings. That is what this guide is all about, so read on.

The most important part of taking a picture is the film. Film is very sensitive to light. A tiny bit of light will make the film change. It darkens at the spots where light touches it. That is why 35 mm film comes in a metal container that keeps light away from the film until it is in your camera.

When you put 35 mm film in your camera and close it, it is okay to start winding the film out of the metal container because the camera seals out light. When you take a picture, all you do is let just enough light in to record a nice, sharp picture on the film. You have to set the camera properly to control the way the light gets into the camera.

All cameras have three basic settings. They are:

Shutter Speed

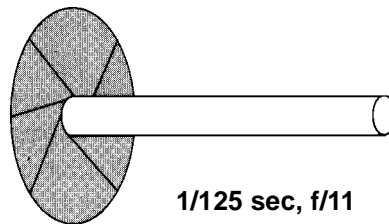
Lens Opening

Focus

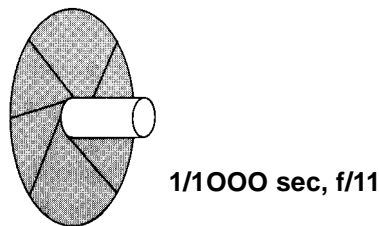
To get a good picture, you need to adjust the shutter speed and the lens opening settings to control the amount of light entering your camera.

The *shutter speed* controls the length of time the shutter will stay open to allow light to reach the film.

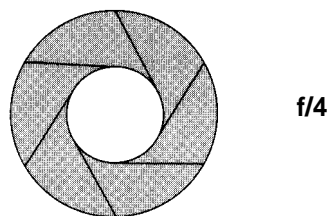
A slow shutter speed lets light in to expose the film for a long time.



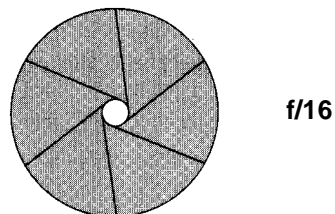
A fast shutter speed lets light in to expose the film for a short time.



The lens opening controls how much light will enter the camera while the shutter is open. A large lens opening lets in a lot of light.

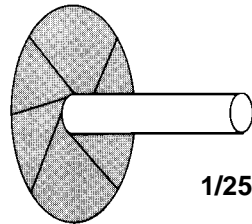


A small lens opening lets in a small amount of light.



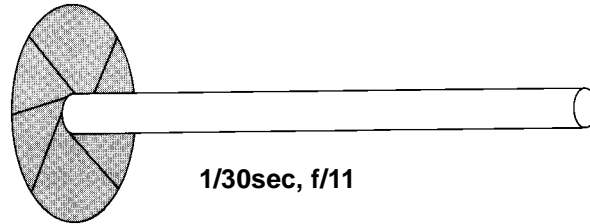
To get good pictures, the film in your camera needs to be exposed to the same quantity of light for every picture.

On a normal sunny day, you will use a fairly fast shutter speed and a medium lens opening so that the correct amount of light will reach the film and you will get a properly exposed picture.



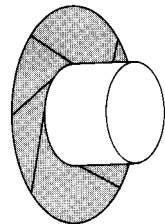
1/250 sec, f/11

On a cloudy day, the light isn't as bright and you need to either let light into the camera for a long time,



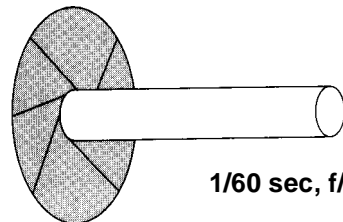
1/30sec, f/11

or let in a lot of light for a shorter time.



1/500 sec, f/2.8

Or possibly both—a lot of light for a long time.



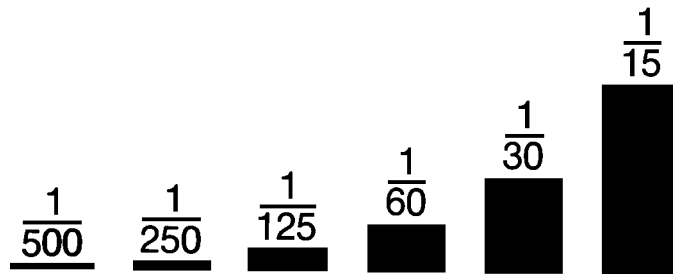
1/60 sec, f/8

Find the shutter speed settings on your camera and learn how to change them. Your camera instruction book will explain how to do this. Shutter speed settings are usually numbered 30, 60, 125, 250, 500—or on older cameras 25, 50, 100, 200. The numbers refer to fractions of a second, such as $1/30$ or $1/500$. All further reference will use only the settings for newer camera (30, 60, etc). If you have an older camera, just remember that 30 is about the same as 25; 250 is about the same as 200.

Find the lens opening settings (f/22, 16, 11, 8, 5.6, 4, 2.8) on your camera and learn how to change them (see your camera instruction book).

THE SHUTTER

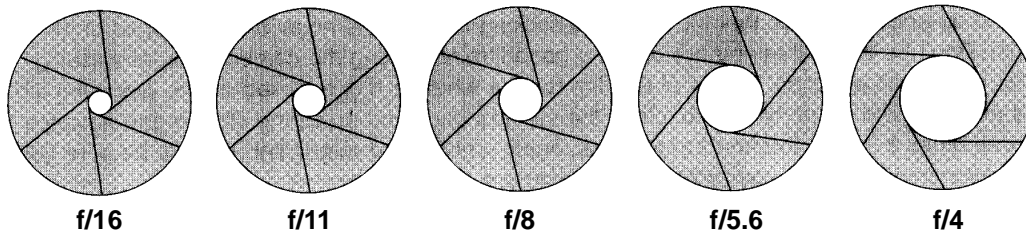
Set the lens opening on your camera at its largest opening (f/3.5 or f/2.8). Set the shutter at 30. Now open the back of your camera. Be very careful not to get your fingerprints on the inside of the camera or on the lens. Touch only the outside parts of the camera. Never touch the lens or the inside parts of the camera. Hold the camera up and look into the lens through the back of the camera. Press the shutter release and see how long light is let through the lens. The shutter was open for only $1/30$ of a second. Now advance the camera once and set the shutter speed at 250. Hold the camera up and look through the back as you did before. Press the shutter release. The shutter was open for only $1/250$ of a second. Compare several different shutter settings to get an idea of how they relate to each other. Starting at the fastest shutter setting, each smaller setting lets light in twice as long as the one before it.



THE LENS OPENING

Set the shutter at its lowest speed. Use the B setting if your camera has one. Set the lens opening at its largest opening. Open the camera back and hold the camera up as you did before. Press the shutter release and notice how big the opening is when light comes through the lens.

Now set the lens at the smallest opening, advance the camera once and repeat the exercise. Notice how small the opening is when light comes through the lens this time. Compare several different lens-opening settings so that you get an idea of how they relate to each other. Just like the shutter settings, starting with the smallest lens opening (f/16 or f/11), each larger opening lets twice as much light into the camera as the setting before it.



In this exercise you have just kept the back of your camera open in order to see how it works. The inside parts of a camera are easily broken. Therefore, it is normally best to keep the camera back closed. Open it only when you are loading or unloading film.

FOCUSING

The next setting to master is the focus. Whenever you look through a lens, a magnifying glass for instance, you have to move it back and forth until the subject looks sharp and in focus. The same is true of your camera lens. As you turn the focus ring on your camera, the lens moves back and forth bringing the subject in focus. If you are taking a picture of something ten feet away from you, set the camera focus for ten feet and take the picture. If the subject you are photographing is 25 feet away, set the focus for 25 feet. If you are taking a picture of a scene, or a building, or anything that is more than 25 feet away from you, set the camera on infinity (∞). At this setting, everything in the distance is in focus.

These are the three basic camera adjustments: Shutter speed, lens opening, focus. Some cameras have lots of other things to set and gadgets to fiddle with. They are all helpful and fun to use after you have mastered the basics. For now, you should stick to practicing these three. The following exercises will help you learn more about these adjustments and get some practice in using them.

Now it is time to load film in your camera. Get a roll of KODAK ROYAL GOLD 200 Film. It comes in two lengths—one for 24 pictures and a longer length for 36 pictures. Either will do. If you are undecided, get the 24-picture length to start with.

All 35 mm cameras use 135-size film. To load the film in your camera, read and follow the instructions in your camera instruction book.

Film is loaded into most 35 mm cameras about the same way. The film comes in a metal container to keep out the light. The metal container is put in one side of the camera (usually the left side). Film is wound over to the other side as you take pictures. Then after you have taken all of the pictures on the roll, and before you open the camera, the film must be rewound back into the metal container.

Here's how to load film in a camera step-by-step. Open the cardboard film carton. Inside you will find a plastic can that protects the film from humidity. Remove the metal container of film. A piece of film sticks out of the metal container as though the film is sticking out its tongue. Put the metal container into the camera so that the small spool sticking out of one end of the film container is pointing to the bottom of the camera. In most cameras you have to pull up on the rewind knob before the film container will fit. The tongue of film will stick out across to the other side of the camera. Then clamp the metal container into place. Since each camera does this a little differently, check your camera's instruction book or get your camera dealer to help you. Usually, pressing the rewind knob down will do it. Now slip the tongue in the take-up spool found on the right-hand side of the camera (you will have to pull a little more film out of the metal container to do this). Be sure that the teeth on the take-up sprocket (near where you fastened the tongue) fit into the holes along both edges of the film. Wind up enough film so that the teeth are sticking through the holes on both edges of the film. Don't be afraid that you are spoiling good film in loading the camera. The processing lab will cut off about six inches of the film tongue whether it is exposed or not. Once the film is attached and properly wound, close the camera back and press the shutter and advance three times to get to the first frame. Here, again, check your instruction book to be sure you do everything right for your camera. Now you are ready to go.

THE LIGHT METER

You now know about the two basic camera settings that control light entering the camera—shutter speed and lens opening—but if your camera has a light meter there is a third setting you must make every time you put film in the camera. There are different types of film made for 35 mm cameras. Each has a different sensitivity to light. Some need less light than others for a good picture. You have to set the film speed to tell the light meter in your camera what type of film you are using so that it will know how much light is needed to produce a good picture. Film speed settings are referred to as ISO. All 35 mm films have an ISO number printed on the film box and on the metal container holding the film. Be sure that the setting for ISO on your camera matches the ISO number marked on your film container. The higher the number, the more sensitive the film.* With KODAK ROYAL GOLD 200 Film, set the meter for 200.

ISO numbers are commonly referred to as the film's "speed." Very sensitive films are called "high-speed" films and less sensitive films are called "slow" films. Sometimes you'll hear people talking about the "film-speed setting" on a camera. They are probably referring to the ISO setting. It has nothing to do with how quickly the film moves through the camera.

*ISO Refers to the International Standards Organization which is the organization that assigns numbers to different films. ASA used to refer to the American Standards Association, which has now changed its name, but the initials are sometimes still used. ISO and ASA mean the same thing.

EXERCISE #1

The one most important thing to remember about taking a picture is to hold the camera steady.

Pick a subject in bright sunlight. Set your shutter at 125, your lens opening at f/16 and the focus at 10 feet.

Set the camera on a solid, flat surface and take a picture of a solid subject that has some detail in it. Be sure that everything shown in the picture is at least 5 feet away from the camera. Try to avoid anything that might move, such as tree branches, people, or animals. You want both camera and subject to be absolutely still. Be sure that you do not move the camera in any way when taking the picture.

(Put your example here.)

Results: This picture should be clear and sharp with good detail. This will show the sharpness you can get with your camera when it is held steady.

Now take a picture of the same scene holding the camera in your hands. Stand with your feet firmly on the floor or ground and your weight distributed evenly so that you're not balancing on one foot. Now press the shutter release as smoothly as possible—don't jab at it. A firm grip on the camera is important. If possible, brace your camera against your face to help keep it steady. Many cameras can be held so that one finger of your right hand is on the shutter release and your right thumb is on the bottom of the camera. When you press the shutter release with this grip, you will be making a smooth, pinching motion with your right hand. Remember: ALWAYS HOLD THE CAMERA ROCK-STEADY AND PRESS THE SHUTTER SMOOTHLY.

(Put your example here.)

Is this picture as sharp as the one before?

Holding the camera steady is the most important thing for you to learn and remember.

EXERCISE #2

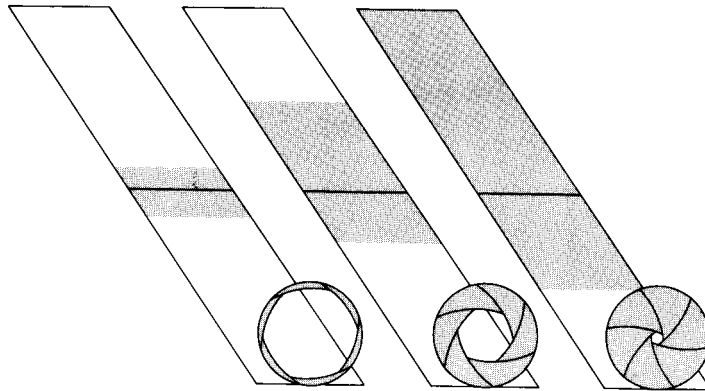
We adjust the size of the lens opening to control how much light goes into the camera. The size of the lens opening also controls how much of the picture is sharp. A small lens opening makes more of the space in the picture appear sharp. A large lens opening makes a smaller portion of the space in the picture appear sharp.

Let's demonstrate this. Your eye usually has a medium lens opening. Take a piece of paper and punch a small hole in it about the size of the lead in your pencil. Twirl the pencil around a few times so that the edges of the small hole are smooth and you can see through it when you hold it up to your eye.

First, look toward a wall across the room from you and hold a finger up about a foot in front of you. Close one eye. With the open eye, can you focus on both the finger and the wall at the same time? The answer is probably not. The lens opening of your eye is too large and you have to focus on either the finger or the wall.

Now hold the paper as close to your eye as possible so that you can see through it and use the hole you punched in the paper to reduce the lens opening your eye sees through. Look through the hole in the paper at your finger and the wall. Are both in focus now? Yes. The smaller lens opening increased the area in the scene that is sharp.

The camera works the same way. The smaller the lens opening, the more area of the picture that will be in focus. The larger the lens opening, the less area of the picture that will be in focus. This area of sharpness is called the "depth of field." With large lens openings, the depth of field is short; with small lens openings, the depth of field is long.



EXERCISE #3

Select a scene to photograph that has something near the camera as well as far away. For instance, a tree branch or a person 5 or 6 feet away from the camera and a house or other scene in the distance. Be sure that you can see both in your viewfinder. Use a large lens opening to take the picture. For this exercise set the lens opening at $f/2.8$, the camera shutter at 250 (or as fast as your camera will allow) and the focus at infinity (∞).

(Put your example here.)

Result: The object near the camera should be out of focus (fuzzy) and the distant scene should be sharp. (A large lens opening gave you a short depth of field.)

Using the same scene take the same picture but this time use a small lens opening. For this exercise set the lens opening at $f/16$ or $f/22$, the shutter at 60, and the focus at infinity.

(Put your example here.)

Result: Everything in the picture near the camera and in the distance will appear sharp. (A small lens opening gives you a long depth of field.)

EXERCISE #4

Sometimes it is nice to have the background out of focus. For instance, take a picture of a flower blossom that stands high enough off the ground so that you can see both the blossom and a background scene when you look through the camera. Take the picture about two feet from the blossom. For this exercise set the lens opening at $f/2.8$ and the shutter speed at 250 (or as fast a shutter speed as your camera will allow). Set your focus for the exact distance between the flower and your camera. Measure the distance.

(Put your example here.)

Result: The flower blossom will be sharp but the background will be fuzzy, making the blossom stand out.

Now take the same picture but set your lens opening at f/16 and your shutter speed at 125.

(Put your example here.)

Result: Both the blossom and the background will be sharp. The background probably takes your eye away from the flower.

EXERCISE #5

Take a picture in full sunlight. Avoid all shadows, shade, or dark backgrounds. Have someone doing something about 10-12 feet away from you with the sun shining on him or her. The basic exposure settings should be set at about 250 with a lens opening of f/11 focused at 10-12 feet. If you have a meter in your camera, use it.

(Put your example here.)

Now take a picture of someone in the shade. There is not as much light in the shade so you'll have to let more light in to the film. The setting will probably be set at about 250 with a lens opening of f/5.6, or wider if it is really dark, focused on the subject 1-12 feet away. If you have a light meter, use it.

(Put your example here.)

Now take a picture with a combination of sunlight and shade. Here is where a light meter is really handy. If your camera has a light meter, use it. If you do not have a meter, you want to let enough light into the film to see things in the shaded part of the picture. Open the lens up by one stop more than you would use for sunshine. The general setting would be 250 at f/8, focused on your subject.

(Put your example here.)

EXERCISE #6

One of the advantages of being able to adjust your own camera settings is that you can use very fast shutter speeds to get sharp pictures of moving subjects. Try this by taking a picture of someone running in a sports game, or a pet running or jumping in the air, or someone bouncing a ball, or a car passing by on the road. Set your camera at the fastest shutter setting it has and adjust the lens opening accordingly. (Basic sunlight exposure is 250 at f/11. For each faster shutter speed you use, you have to open the lens one “stop” wider; 500 at f/8, 1000 at f/5.6.) Focus on your subject and take the picture.

(Put your example here.)

EXERCISE #7

Just to prove to yourself how nice it is to be able to use a fast shutter speed, try taking the same type of picture (as in Exercise #6) but using a shutter speed of 30. Your subject should be in the shade, so you can use this shutter speed and a small lens opening on your camera. Remember to focus properly and if you have a light meter use it. Hold steady—this is a very slow shutter speed.*

(Put your example here.)

*30 is the slowest shutter speed you can use and still take sharp pictures while holding the camera in your hand. If you need a slower shutter speed, use a tripod or set the camera on something firm and solid.

EXERCISE #8

When the light is shining from in back of your subject, it's called backlighting. With a normal sunlight setting, your subject will turn out very dark—just a silhouette against the bright background. This can make a beautiful, dramatic picture. Try it.

(Put your example here.)

Now take the same picture with the camera set to properly expose the shaded front of your subject. If you have a light meter, move up very close to your subject and use the setting that the meter gives you. Once the camera is set, you can move back and take the picture. If you don't have a meter, you probably should set your shutter at 250 and the lens opening at f/5.6. Remember to focus.

(Put your example here.)

EXERCISE #9

With an adjustable camera you can even take pictures at night. Try a picture of your house after dark with all the lights on. Your meter won't help you here. It will see too much darkness. Set your shutter at 30 and open the lens to its widest setting. Remember to focus carefully and hold the camera very steady.

(Put your example here.)

EXERCISE #10

Most adjustable cameras have a shutter setting for time exposures. This means that the shutter will stay open as long as you press the shutter release down. If your camera has a shutter setting of "B," try a time exposure at night. Put your camera on a tripod or set it on a firm, solid surface so it won't wobble, shake, or move. Set the shutter at "B" and the lens at its largest opening. Now have someone stand about 15 feet away, and with a flashlight pointing at the camera, make patterns in the air or write his or her initials or nickname (backwards) while you are holding the button down. A locking cable release will be helpful with this exercise.

(Put your example here.)

Typical Existing-Light Exposures for KODAK ROYAL GOLD 200 Film

Picture Subject & Lighting	Shutter Speed	Lens Opening
Bright or hazy sun on light sand or snow	1/250	f/16
Bright or hazy sun (distinct shadows)	1/250	f/11
Weak hazy sun (soft shadows)	1/250	f/8
Backlighting close-ups in bright sun		
Cloudy bright (no shadows)	1/250	f/5.6
Open shade		
Heavy overcast	1/250	f/4
Dull, rainy day	1/250	f/4
Neon and other signs at night	1/60	f/4
Interiors with bright fluorescent lights	1/30	f/4
Brightly lighted streets at night	1/30	f/2.8
Bright home interiors at night	1/30	f/2

More Information

For more information, contact Kodak in your Country.

Kodak and Royal Gold are trademark.